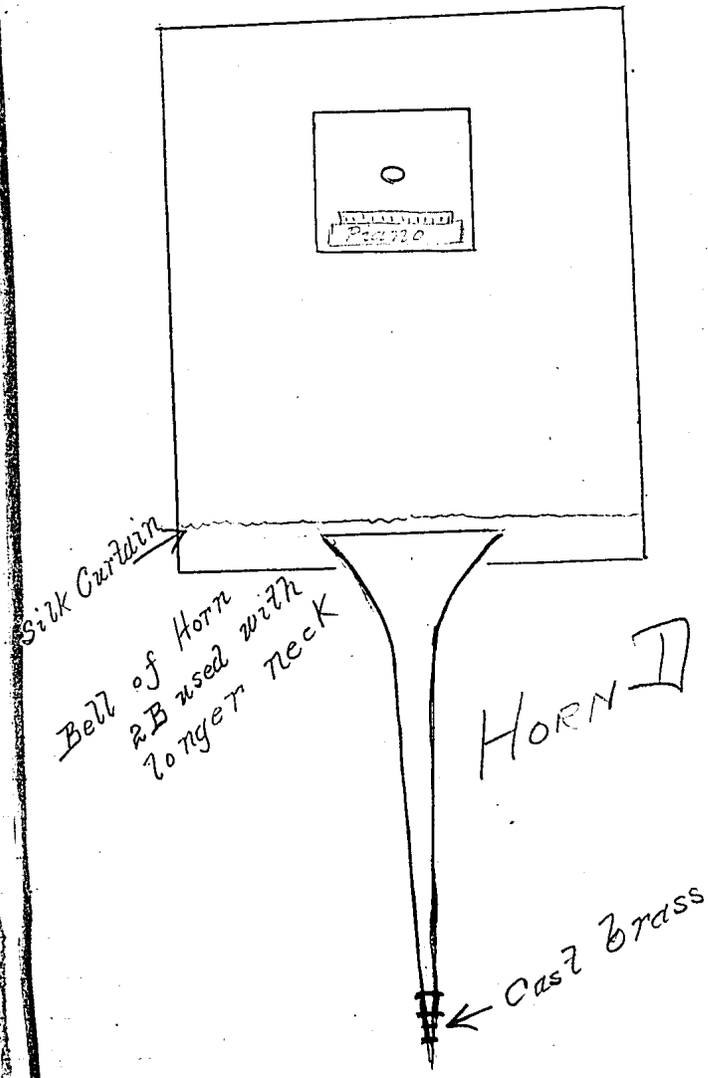
Notebook Series -- Notebooks by Edison and Other Experimenters
Recorder and Recording Experiments -- Miscellaneous Books
Notebook, N-16-11-13

This notebook was used by E. Rowland Dawson during November 1916-February 1917 for notes on experimental recordings. The entries contain details of the recording sessions, including weather conditions, and numerous entries either quote or paraphrase Edison's comments and opinions. Also included are notes relating to voice trials for a sextet to be organized to make experimental recordings. Some of Dawson's comments indicate skepticism about the usefulness of these experiments. The notes indicate that William A. Hayes and Absalom M. Kennedy worked with Dawson on some of the recordings and recorders. The second part of the book [not selected] includes a list of disc prints from August-September 1921 and entries on pianos, harps, and other musical instruments used at the recording studios from 1922 to 1925. The label on the front cover is obscured by tape. The pages are unnumbered, and several pages have been removed from the front of the book. Approximately 60 pages have been used.


Piano
Silk Curtain
Bell of Horn
2B used with
longer neck
HORN
Cast Brass

Nov 13

Test of diameters of heads using interchangable diaphragm on different heads.

The same diaphragm is used in all three cases, recorder trunnions etc being changed

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7/8 inch head much better in quality than 1/4 inch also a trifle louder in volume

1/2 inch not as good as 3/8

Mr Edison say 3/8" is the right one

Nov 15

Test of Mica Diaphragm against Paper Diaphragm

Using same head first mica diaphragm then paper.

Mica proved better in quality and volume.

Note. – This is a damp day and paper diaphragms do not show up as well as they did last week on a bright day. This would not change the verdict however. Mica is the better

Nov 15

Test of Gaskets of Different Thicknesses.

Using 3/8 inch lead throughout and paper diaphragms

.005" .010" .015" .020" .025" .030" .037" .042"

.015" the loudest.

Quality much the same, but proving slightly with greater depth

Mr Edison says .020 to .030 is best

Nov 13

Test of Effect of Temperature upon Recorders

Studio was very cold and damp and records very weak sharp and disagreeable

after heating to about 75° another record of the same piece same recorder and conditions was made

Record was 75% louder and quality much improved

Nov 12

Test of distance from Recording Horn in Booth.

Quartet sang at 3, 6, 9 12 and 20 feet.

Mr Edison says very slight difference between 3' + 6'. To us there was practically none

at more than six' distance was noticable but was fairly loud at 20'

Mr Edison says "I will get the symphonies all right." The horn seems all right but you must get more sensitive recorder"

Nov 15

Miss Bicknell making test record blasted on high notes at three feet.

At six feet record did not blast but was just on the verge. However her placement was better when singing at six feet.

#130 alluminum dome made for the old horn proved better than any other recorder.

Nov 16

Signor Bill Hayes joined us today, and we tried one of his recorders against our own and found recorders we now have are more sensitive than present commercial recorders. However Mr Edison says we must get one more sensitive

Nov 17

Test of wrapping horn with cow hair.

(a) Test with both bell and neck of horn pretty thoroughly wrapped.

(b) With neck thoroughly wrapped and bell free of cow hair

(c) With part of neck wrappings off, leaving neck wrapped only in spots to break up nodes.

(d) With horn entirely free of cow hair.

We find (a) more solid and clean (d) with more of room tone about equal in volume

(a)

Nov 18

Wrapped neck of horn thoroughly with cow hair even the cast brass section.

Kept same in this manner during voice trials Nov 20, 21 & 22nd.

Getting new recording and new reproducing machines ready.

Nov 20, 21, 22

Mr Edison ordered a sextet organized.

Called on Mr Chas. N Drake of Wolfsohn Bureau, Mrs Charlotte Babcock, Towsend H Fellows, 815 Carnegie Hall, Mr Boone of Criterion Bureau, and Mr Anderson and told them we would hear voices on the above dates.

In all we have to date received and recorded 64 applicants and there are several to come. We gained for ourselves three very busy days and are no doubt richer in experience. We now have 64 records from which to choose 6 voices to do test work of doubtful value.

Nov 23

Noticed standing in back of reproducing horn, tone sounded much clearer and diction was very much better

Placing Mr Edison's stand for listening in front of reproducing horn with the horn going into the reproducing horn, brightened and cleared the tone, and helped the diction

Reproduced through old devil cat horn and found it sharpened and cleaned the tone, but was not as rich in quality

No 524

Kennedy Miss Langrand and I weeded out the 64 trails of voices which we had taken, reducing the total number for him to listen to to 12.

Compared blue violin record to wax of same thing, made in same way, at same time and under same conditions.

Found the blue brighter sharper and cleaner. Volume about the same. Improves the quality, I should say.

C313

Nov 25

Mr Edison listened to the 12 trials which we had picked out as the best.

He gave them fairly good ratings and then asked to hear some of the others. I played some, telling him they were second best. He thought them pretty "rotten."

"Well, I guess you have them all right". He said after hearing a dozen or so. I asked him if he didn't want to listen to some bad ones. "Aren't these bad ones?" "No, they are second best" "Well they are bad enough."

We got a sextet accepted

Nov 25

Mr Edison approved wrapping the horn entirely.

Gave him tests with horn unwrapped neck partially wrapped, neck entirely wrapped Neck and bell both wrapped.

"I can hear it getting better right along as you come up. The horn wrapped is clearer and firmer. Not much change in volume."

Dec 1/16

We have written scotch to report Monday consisting of

Miss	Schumann,	Sop
"	Hood.	Con
Mr	Sawyer	Ten
"	Berry	"
"	Merchant	Bar
"	Myers	Bass

Per che? Ich weiss nicht.

Recorder 107 which is armless tempered alluminum remains unbeatable. It is made like 129 + 130 of last winter. It appears we can also use recorders of smaller diameter on this horn.

3/4 inch recorder of 107 type should be a winner

Dec 4

Sextet began operations today.

They are six congenial persons. Voices blend well and they are musical.

They are on much higher plane than anything heretofore. Too bad there isn't a more definate purpose connected with their work

Dec 11

In order to get tests exactly in the same manner, decided to use disc machine on cello stand in recording booth directly under 3, replacing vocal and instrumental tests.

Mr Biro decreed Miss Rkolnik was not needed here except in the orchestra and that she was not to continue except on Mon days.

The orchestra is summoned for Wednesday:

Concert Master	Miss Rkolnik
II Violin	Mr Dolloway
Viola	" Abe Rabinowitz
Cello	" Jeff Tuckhott
Bass	" Cherkasky
Piano	Miss Smorand

Mr Tushnett writes today he is in Boston and will be there with Musical show until Christmas. He suggests Mr Bernard Diamant 617 P. 178 St as substitute until that time. He wrote Diamant to come.

There are at last signs of bringing these working experiments to a head, and it can't be so too soon. I am going to stay to the finish but can't see why that shouldn't be by Christmas. The new Korn is in many characteristics different

from the present disc recording and whether he likes it or not, Mr Edison ought to tell by Christmas and then there are three courses open:

(a) Build another home
(b) Start making commercial records
(c) Cut it all out [illegible]

Dec 22

Orchestra and sextet worked several weeks. Bill Hayes recording got them up to commercial volume and records stood out. We were working principally for loudness and worked as near horn as possible. The sextet was fine and we congratulated ourselves, but Mr Edison's verdict was "Rotten, your recording has deteriorated 200%"

Said we were working too near the horn and his evident desire is to

make records from the middle of the booth and get have them loud. It is an almost impossible task but that seems to be our problem. The quality is unquestionably better from a distance and ensembles blend better but the volume at 8 feet is very weak still.

We have suspended the sextet and orchestra to try and get more sen-

sitin's recordors.

Bill Hayes has been recalled from there. The "Old Man" said "I had him over there just to do what recording you wanted." Kinnedy "He has done a little more than that." "I'll bring him back then."

CSIJ

Jan 2, 1917.

At New Year's we can certainly duplicate what we did last winter and show some improvement. We cannot however retain same quality and make records stand out as the disc records do, nor can we record from the centre and back of the booth and have records sufficiently loud as Mr Edison seems to want us to do

It looks like an impossible task upon which he has set us. Impossible

at any rate to conventional recording methods. If the deed is to be "did" it will be by something very radical in my opinion

Jan 12

I have often wondered what becomes of sound waves after they hit diaphragm of recorder. It has always seemed to me there was no outlet other than back through the horn, and the struggle for freedom of the returning waves against the incoming waves must have been frightful in the wave world.

It has always seemed to me an expanding chamber in the recorder would ~~cook~~ eliminate some of this fight by giving it more room to spread out in.

Kennedy is now trying such an experiment. The results so far seem to show a spreading tone rather than a concentrated resonant one.

I had imagined the result

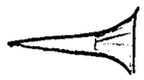
CST

would have been just the opposite.

It now appears that waves after striking diaphragm do not come back through the horn but go right on through the diaphragm and arm and what waves are not killed by friction etc go on into space.

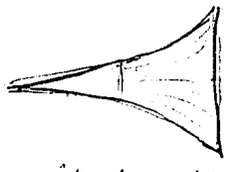
Jan 17

Following is outline of the horns we have tried and the way they ~~have~~ been designated in notes.



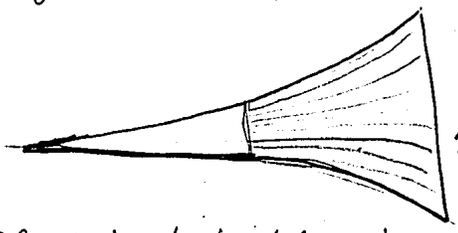
2A

Neck of original #2 horn with large flare added.



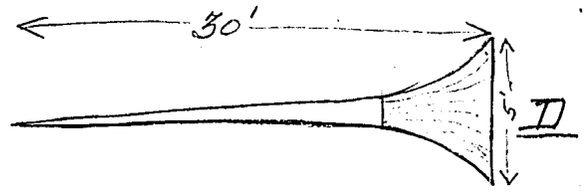
2B

Which is twice the size of 2A and of same shape materials etc



2C

Which is twice the size of 2B and of same shape materials etc



Which has the bell of 2B with a long gently tapered neck replacing neck of 2B

Dimentions - length of neck 28 feet
Diameter where neck and bell join 14 inches
Diameter of bell — 5 feet
Length of bell — 4 feet

The small end of neck has 1 feet taken from cast brass horn thus making a firm extremity to the thin brass of the neck

Jan 19/17

Kennedy has succeeded in getting alluminum rolled to less than 1/2 thousandth of an inch which seems to be promising, so promising in fact that he has a "systematic" scheme for building diaphragms out of it that at the pace we are going will take several months

After this there are electroplated diaphragms of a million or so varieties to be tried. By which time numerous other opportunities for experiment on diaphragms will no doubt have presented themselves.

By the time we are ready to do something, it will be bed time in eternity

My suggestion in the fall of adding more mechanics would have had this field covered before this

Jan 23/17

Last week I wrote Mr Edison telling him my candid opinion of what we have done so far and what I thought we ought to do now.

In brief I thought present horn admirable for big orchestra and large chorus but that a smaller horn would produce better results for solos.

I suggested we get 15 violinists out for a day or two and let them play in unison also that we get a church choir out for a day, in order that we could get some idea of what we can do with a big crowd.

Suggested we ought to try the disc also.

He has paid no attention to the note so while he may have given it some thought, evidently my opinion is not wanted so hereafter I feel I should do what I am told - no more, no less.

Feb 1/17

Met Mr Edison and he told me "I am in a hell of a mess" and am afraid I'll have to close up over there until I get free and can come over myself. I am going to Florida next week and I don't know now when I'll get there but I'll make things move when I do."

Later we played some records for him and while he didn't like the recording, he said nothing about closing, but I am sure he hasn't forgotten it.

Our recording is much brighter and has a great deal more life and pep than the disc and eliminates the extra fullness the disc has

I am convinced the quality we were aiming for and approaching in our recent recorders would make the Edison phonograph if adopted a genuine competitor of the Victor, with the addition of course of a large catalogue of records.